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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/828,381	04/05/2001	Song Chen	14303.0115	1798

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EXAMINER

NGUYEN, VAN H

ART UNIT	PAPER NUMBER
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2194

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11/01/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 09/828,381	Applicant(s) SONG CHEN	
	Examiner VAN H. NGUYEN	Art Unit 2194	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08/16/2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-43, 45, 46 and 48-73 is/are pending in the application.
- 4a) Of the above claim(s) 42 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12, 23, 24 and 40 is/are allowed.
- 6) ☒ Claim(s) 1-11, 13-22, 25-39, 41, 43, 45, 46, and 48-73 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This communication is responsive to the RCE filed 08/16/2007.

Claims 1-43, 45, 46, and 48-73 are currently pending in this application. Claim 42 has been withdrawn from consideration.

Applicant is required to cancel non-elected claim 42 in the next response to this Office Action.

Applicant should update the related Application information.

Cross-referenced Application information must accurately reflect the relevant status of related cases. Applicant should review the related cases and provide appropriate amendments to reflect the current information on each case with relevancy to the instant Application.

Request Continuation for Examination

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR

1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 08/02/2007 has been entered.

Indication of Allowable Subject Matter

3. Claims 12, 23, 24, and 40 appear to be allowable over the prior art of record, subject to a final search.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-11 and 53-56, 62, and 68 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As to claim 1, "*said object-oriented virtual machine interface*" lacks antecedent basis.

Dependent claims 2-11 and 53-56, 62, and 68 are rejected for fully incorporating the deficiencies of their base claim.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-11, 13-22, 25-39, 41, 43, 45, 46, and 48-73 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Specification does not explicitly describe nor is sufficiently clear for one of ordinary skill in art to recognize the feature “*each kernel ... is capable of running simultaneously with any of the plurality of kernels*” in claims 1, 13, 29, 37, 46, and 46as amended by Applicant in the amendment filed 08/02/2007.

The Examiner could not locate the details of the feature “*each kernel ... is capable of running simultaneously with any of the plurality of kernels*” in the specification.

The dependent claims are rejected for fully incorporating the deficiencies of their base claims.

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-11, 13-22, 25-39, 41, 43, 45, 46, 48-52, and 56-73 are rejected under 35 U.S.C. § 103(a) as being unpatentable over **Sharrit et al.** (U.S. Patent 5,999,990) in view of **Savitzky et al.** (U.S. Patent 5,732,261) and further in view of **Songer et al.** (U.S. Patent 6,763,327).

As to claim 1, Sharrit teaches:

a reconfigurable wireless network communication apparatus (communicator 10) comprising a plurality of kernels (configurations of reconfigurable resource units RRUs), a plurality of software objects (library of configuration files) including a first subset of said software objects (one set / different set of processing functions), each software object in said first subset of said software objects associated with (used to configure RRUs) a different kernel in said plurality of kernels so that a change to a software object (new / updated configuration files, col. 4, lines 14-15) in said first subset of said software objects results in a change in said kernel (RRUs restructure themselves in accordance with the configuration information) associated with said software object. See col. 1, line 54 - col. 2, line 58. It is noted that a set of RRUs with its respective configuration form a

kernel which typically is a collection of system management functions.

While Sharrit provides a virtual machine interface (dynamically reconfigured RRU) for the reconfigurable wireless (col. 10, lines 46-50) network communication apparatus (communicator), Sharrit does not teach that the plurality of software objects are packaged into an object-oriented virtual machine interface.

Savitzky teaches packaging the plurality of software objects (components / objects, col. 3, lines 60-63) into an object-oriented virtual machine interface (REST object-oriented application framework, col. 3, lines 33-55) for a reconfigurable (capable of communicating with almost any remote machine) network communication apparatus. Col. 5, lines 24-67.

It would have been obvious to package the plurality of software objects into an object-oriented virtual machine interface for the reconfigurable wireless network communication apparatus in Sharrit, as one skilled in the art would have combined the teachings of Sharrit and Savitzky because Sharrit desires incorporating new services to reconfigure resources (col. 5, lines 52-57) and Savitzky provides a mechanism to do so (col. 21, line 65 - col. 22, line 8).

Sharrit as modified by Savitzky does not explicitly disclose the kernels are designed for specific functions and are capable of running simultaneously with any of the plurality of kernels.

Songer teaches the use of multiple “kernel objects...corresponding to various combinations of these configuration options”, col. 7 lines 4-7 in order to facilitate the interface mechanism, which corresponds to the limitation of each kernel is designed to perform a specific processing function and are capable of running simultaneously with any of the plurality of kernels (col.18, lines 33-67). It would have been obvious to combine Songer’s teachings with Sharrit as modified by Savitzky because the abstraction layer of Songer Col. 5 line 65 - col. 6 line 18 would provide the requisite management over kernel objects in the VM interface for reconfigurable systems as taught by Sharrit and Savitsky.

As to claim 2, Sharrit teaches said plurality of software objects includes a second subset (library of configuration files) of said software objects, each software object in said second subset of said software objects having at Least one adjustable attribute (new / updated configuration files, one set / different set of processing functions). Col. 1, line 54 - col. 2, line 58.

As to claim 3, Sharrit teaches at Least one adjustable 'attribute is a static or dynamic attribute (dynamically altered processing). Col. 1, lines 56-59.

As to claim 4, Sharrit teaches a kernel in said plurality of kernels is configurable in accordance with a communication protocol (transmit/receive signals into/from wireless communication channel). Col. 2, lines 6-11.

As to claims 5-8, CDMA and its variations: IS-95 CDMA, IS-95B CDMA, CDMA TIA IS2000, TIA IS 2000A, WCDMA, cdma2000, and ARIB WCDMA, and TDMA and its variations such as IS-136 TDMA are well known wireless communication protocols. It would have been obvious to support these protocols/configurations in the communicator of Sharrit.

As to claim 9, Sharrit teaches a software object in said plurality of software objects is a searcher object, a code generation unit object (Linkage functionality, col. 5, lines 56-57) or a finger object. It is noted that the three alternatives linked by "or" is interpreted as requiring only one alternative.

As to claim 10, Sharrit teaches a software object in said plurality of software objects is a matched filter object or a combiner object (combine RRs/functions, col. 8, lines 17-40). It is noted that the two alternatives linked by "or" is interpreted as requiring only one.

As to claim 11, uplink and downlink are typical functions of wireless communication.

Sharrit teaches configuring the communicator to implement various functions of wireless communication. Therefore, it would have been obvious to implement uplink and downlink functions, with corresponding software objects, in Sharrit.

As to claim 13, note discussion of claim 1. Further, Sharrit as modified by Savitzky provides virtual machine (Savitzky, object-oriented application framework, col. 3, lines 33-55).

As to claims 14-15, note discussions of claims 2-3, respectively.

As to claim 16, Sharrit as modified by Savitzky teaches (Savitzky, object-oriented application framework) an application program interface comprising a plurality of software routines (API of classes), each software routine in said plurality of software routines representing a different communication protocol (machine models), wherein said plurality of software routines comprise software calls to said plurality of software objects (API); and an application program comprising software calls to said plurality of software routines (application layer 140). Col. 5, line 23 - col. 6, line 64.

As to claims 17 and 20, Sharrit teaches compiling functionality (linkage functionality, col. 5, lines 56-57). Therefore, it would have been obvious to use a compiler to provide such functionality. Further, JIT compiler for JVM was well known at the time when the

present application was filed. Translating is a default function of a typical compiler.

As to claims 18 and 21, Sharrit teaches resource allocator (resource allocation unit) configured to receive said machine-readable instructions and issue a signal/command to configure a kernel in said plurality of kernels. Col. 7, lines 14-67.

As to claim 19, Sharrit as modified by Savitzky teaches (Savitzky) program for utilizing a plurality of software objects (application layer 140, Col. 5, line 23 -col. 6, line 64).

As to claim 22, note discussion of claims 9 and 11.

As to claims 25-28, note discussions of claims 5-8.

As to claim 29, it is basically a method claim of claim 1, thus note discussion of claim 1. Sharrit as modified by Savitzky further teaches reconfigurable multi-protocol communication (Sharrit, support new and modified signal formats, support wireline and wireless communications, col. 8, lines 45-51 ; col. 10, lines 46-50), interconnect structure (Savitzky, framework, fig. 2), and attribute value (Sharrit, processing functions, col. 2, Lines 35-50., Savitzky, component's state, fig. 7).

As to claim 30, Sharrit as modified by Savitzky teaches a hierarchical relationship (class hierarchies of the object-oriented framework).

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As to claim 31, Sharrit as modified by Savitzky teaches (Savitzky) an application Program (application layer) that includes software calls (APIs) to said plurality of software objects.

As to claims 32 and 34, the reconfigurable hardware and software of the system of Sharrit as modified by Savitzky provides a virtual execution environment for each combination of application and communication protocols, i.e., providing a software virtual machine. Sharrit as modified by Savitzky teaches issuing an instruction for controlling a kernel in said plurality of kernels (controller, user).

Such instruction being issued from the software virtual machine/environment would have been an obvious choice in view of the system architecture of Sharrit as modified by Savitzky which interfaces a user and the system hardware resources.

As to claim 33, note discussion of claim 17.

As to claim 34, Sharrit as modified by Savitzky teaches issuing, from said software virtual machine, an instruction for controlling a kernel in said plurality of kernels.

As to claim 35, note discussion of claim 16.

As to claim 36, note discussion of claim 16.

As to claim 37, it is basically a program product claim of claim 29, thus note claim 29 for discussion. Note the equivalence of instantiating/creating.

As to claim 38, note discussion of claim 35 and the equivalence of the plurality of standards / plurality of protocols.

As to claim 39, note discussion of claim 9 for code generation unit object. Search, finger, uplink and downlink are typical functions of wireless communication.

Sharrit teaches configuring the communicator to implement various functions of wireless communication. Therefore, it would have been obvious to implement search, finger, uplink and downlink functions, 'with corresponding software objects, in Sharrit as modified.

As to claim 41, note discussion of claim 5.

As to claim 43, it is basically a method claim of claim 1 and thus note the discussion of claim 1 supra. Specifically, the limitation of an object-oriented virtual machine interface ... said software object. Providing such an object-oriented virtual machine interface would have been inherent to the system of Sharrit as modified by Savitzky. Sharrit as

modified by Savitzky further teaches (Savitzky) parsing an application program that designates a communication protocol (application services, col. 7, line 21 - 50).

Producing machine-readable data is a necessary step to realize the control / reconfiguration functions of Sharrit as modified. Further, Sharrit teaches compiling functionality (col. 5, lines 56-57) which typically includes parsing and code generating. Sharrit teaches first software object selected from the plurality of software objects (controller allocate RRU, col. 1, line 54 - col. 2, line 5).

As to claims 45 and 48, Sharrit teaches function or procedure (Library, discussion of claim 1).

As to claim 46, note discussion of claim 43.

As to claims 49-52, Sharrit as modified teaches (Savitzky, fig. 2) one software object objects is associated with at least two kernels and at Least two kernels are associated with one software object in that one application can output to more than one devices (copier and fax machine) and more than one application can access the same device (such as fax machine).

As to claims 56-61, Sharrit teaches "dynamically reconfigured RRUs", col. 10 lines 46-50 that correspond to the recitation of the kernels may be configured for different

parameters dynamically.

As to claims 62-67, Sharrit teaches the objects may be updated according to the states of their associated kernels dynamically (new / updated configuration files -used to configure RRUs, col. 4 lines 14-57).

As to claims 68-73, Sharrit teaches a change in a kernel of the plurality of kernels results in a change in the software object associated with that kernel (RRUs restructure themselves in accordance with the configuration information, col. 1, line 54 - col. 2, line 58).

6. Claims 53-55 are rejected under 35 U.S.C. § 103(a) as being unpatentable over **Sharrit**, **Savitzky** and **Songer** as applied to claims 1 and 13, respectively, and further in view of **Kwon et al** (U. S. Patent 6,151,328).

As to claims 53-55, Kwon teaches that wireless communication functions, including searcher (searcher 117), finger (finger 119), and matched filter (filters 114-116). Col. 10, line 53 -col. 11, line 12. Further, uplink and downlink are also typical functions of wireless communication.

Sharrit teaches configuring the communicator to implement various functions of wireless communication with corresponding software objects. It would have been obvious to

implement searcher, finger, matched filter, uplink and downlink functions, with corresponding software objects in Sharrit, as one skilled in the art would have combined the teachings of Sharrit as modified and Kwon because Sharrit desires adapting to varying system requirements (col. 1, lines 54-56) and Kwon provides a mechanism to do so (in consideration of different channel environments, col. 1, lines 55-60).

Response to Arguments

7. Applicant's arguments filed 08/02/2007 have been considered but they are not persuasive.

Regarding independent claims 1, 13, 29, 37, 43, and 46

Applicant's arguments are substantially directed to the amended subject matter. The amended subject matter is addressed above with respect to the discussion of independent claims 1, 13, 29, 37, 43, and 46.

Regarding dependent claims.

Applicant did not provide arguments in substance regarding the dependent claims except for citing the dependencies.

Conclusion

8. The prior art made of record, see PTO 892, and not relied upon is considered pertinent to applicant's disclosure. Applicant should review these references carefully before responding to this office action.

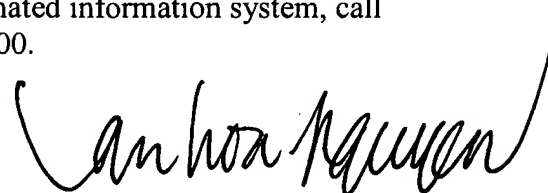
Contact Information

9. Any inquiry or a general nature or relating to the status of this application should be directed to the TC 2100 Group receptionist: (571) 272-2100.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to VAN H. NGUYEN whose telephone number is (571) 272-3765. The examiner can normally be reached on Monday-Thursday from 8:30AM-6:00PM. The examiner can also be reached on alternative Friday. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, WILLIAM THOMSON can be reached at (571) 272-3718.

The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



VAN H. NGUYEN
PRIMARY EXAMINER